Water Resources Advisory Commission: LO Programmatic Overview

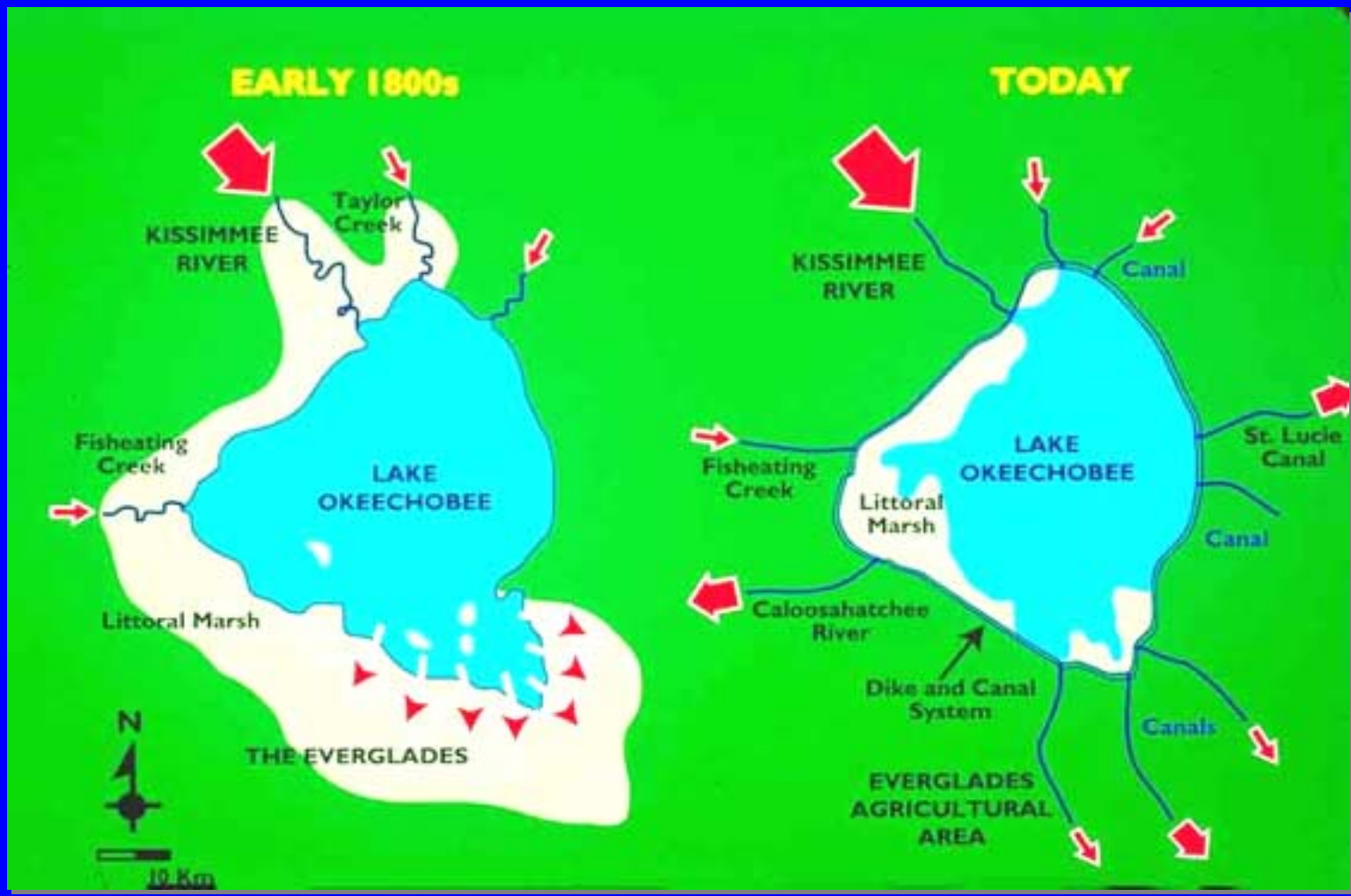
June 7, 2001

Lake Okeechobee is a regional multi-purpose water resource

- Water supply
- Navigation
- Flood protection
- Fishing
- Recreation
- Wildlife habitat

Background :

Regional changes since the early 1800s



Three major environmental impacts

High P Loads

Altered Hydrology

Exotic species

Documents guiding the Lake Okeechobee Restoration Program

- Lake Okeechobee Action Plan
  - Construction of Reservoir-assisted STAs
  - Enhanced Source Control
  - Lake Sediment Removal
  - Exotic Plant Control
  - Lower Lake Levels

http://www.sfwmd.gov/org/wrp/wrp_okee/2_wrp_okee_info/actionplan.pdf

- LO Legislation (§373.4595, F.S.)

http://www.sfwmd.gov/org/wrp/wrp_okee/2_wrp_okee_info/2_wrp_okee_docs.html

Lake Okeechobee Protection Program (§373.4595, F.S.)

- Lake Okeechobee Protection Bill elements:
  - LO Protection Plan and Annual reports
  - LO Construction Project
  - LO Watershed P Source Control Program
  - LO Research and Water Quality Monitoring Program
  - LO Internal P Management Program
  - LO Exotic Species Control Program
  - LO Permits

Lake Okeechobee Restoration Program
Major Elements

1. Exotic Plant Control
2. In-Lake Restoration
   a. Water quality
   b. Hydrology
3. Watershed Restoration
   a. Phosphorus Source Control
   b. Regional Control Projects
   c. Regulatory Program (WOD)

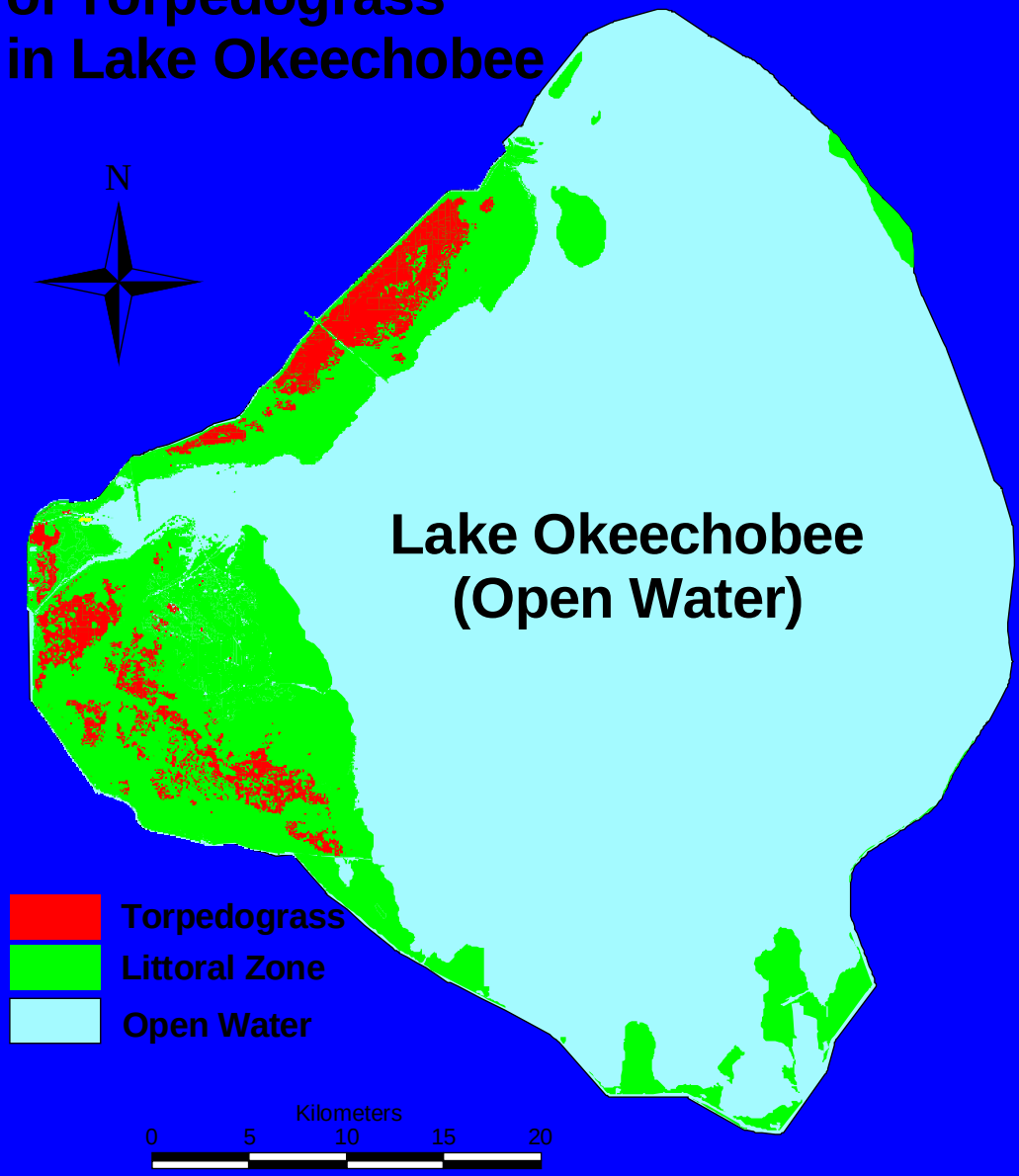
Exotic Plant Control:
Major Projects

- Water Hyacinth Control
- Melaleuca Control
- Torpedograss Control

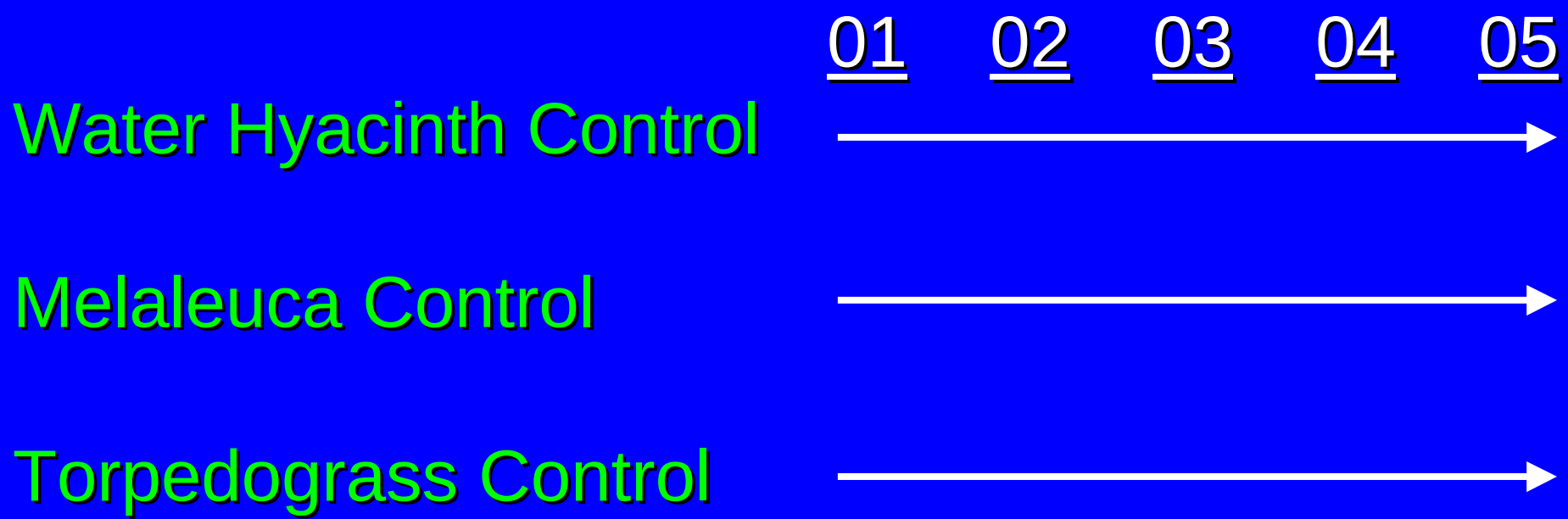
---

green: on schedule and on budget
yellow: problems forecast
red: behind schedule and/or above budget

Distribution of > 16,000 acres of Torpedograss in Lake Okeechobee



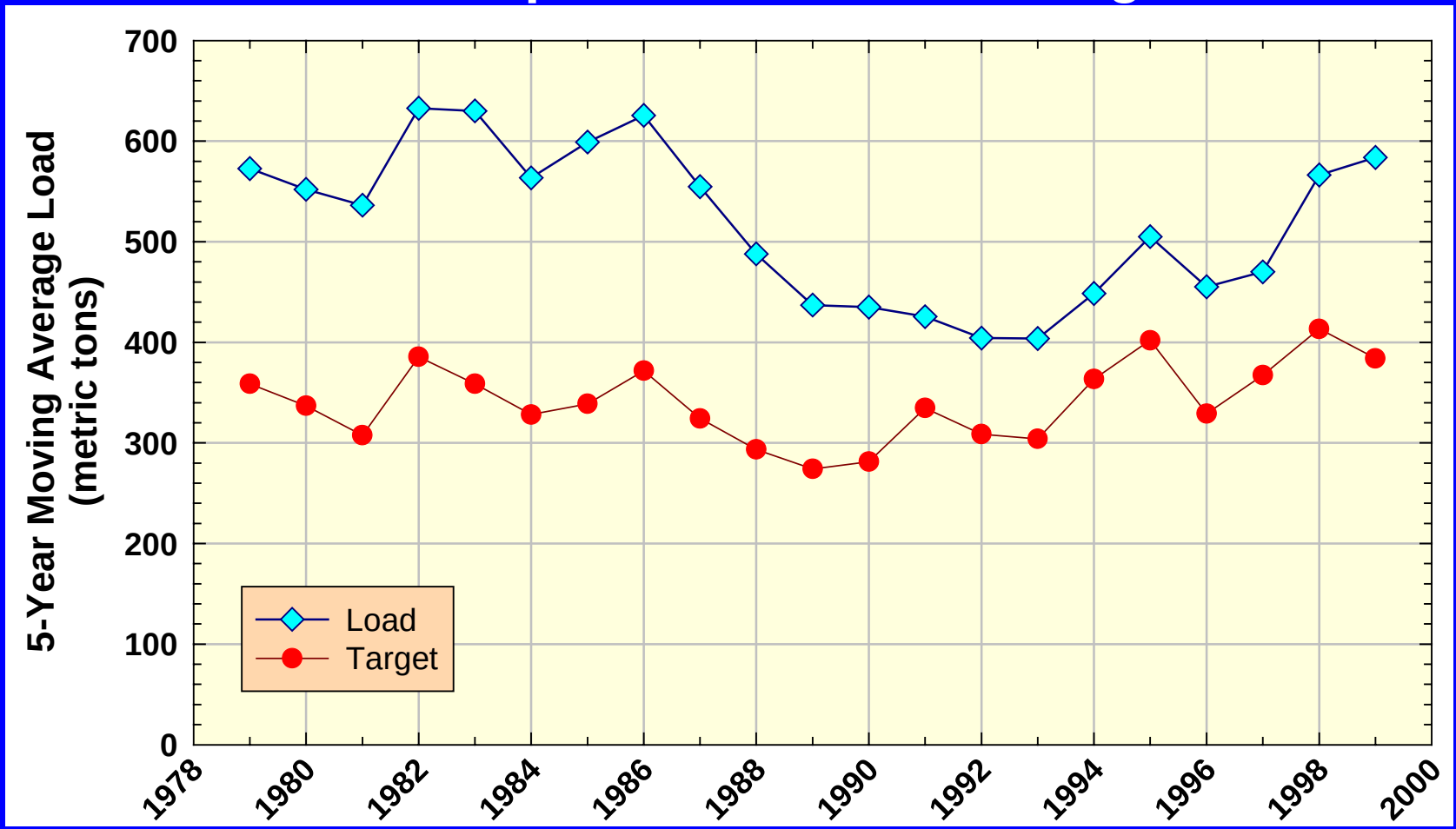
Exotic Plant Control:
Schedule

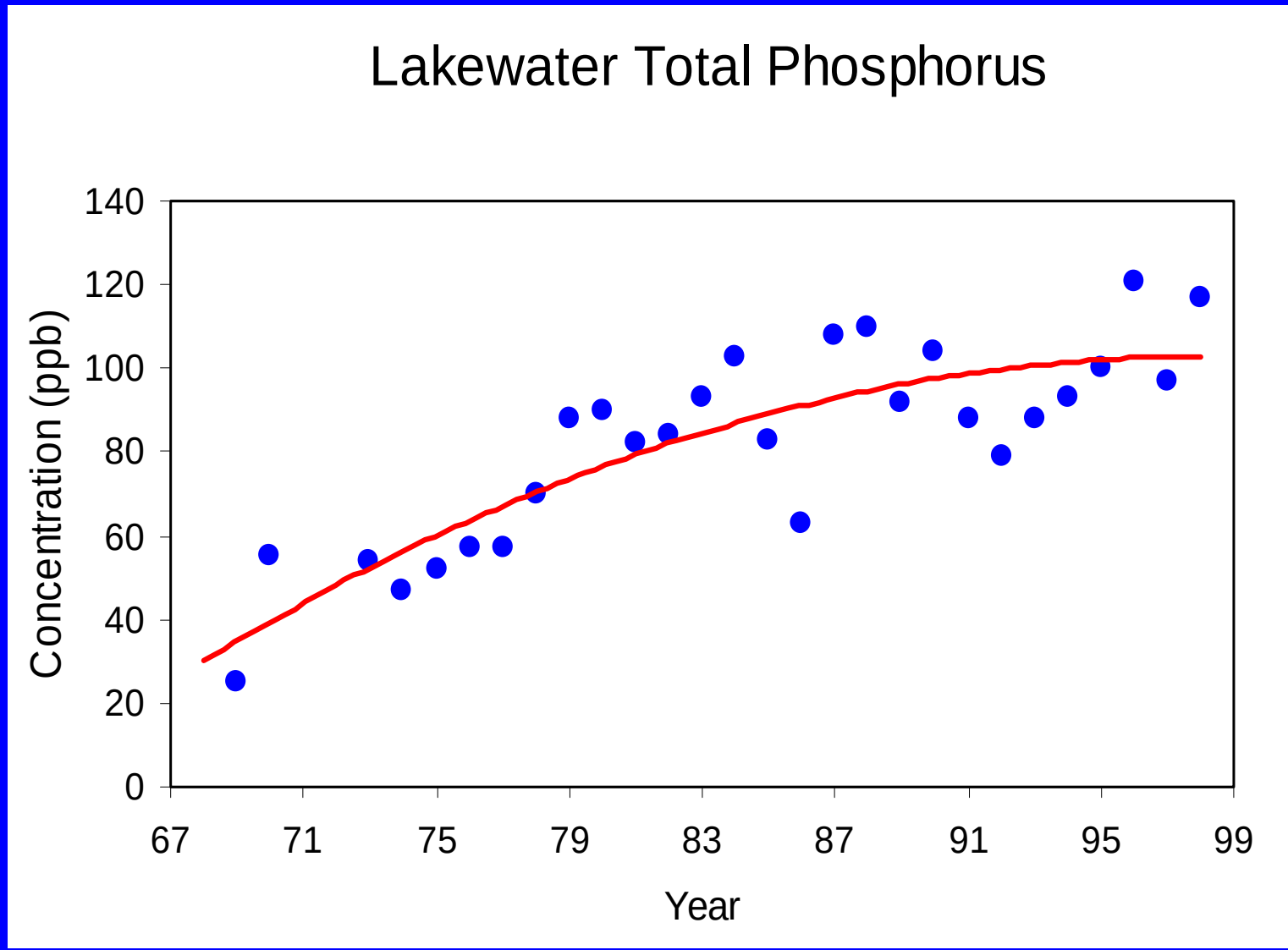


In-Lake Restoration - Water Quality
Major Projects

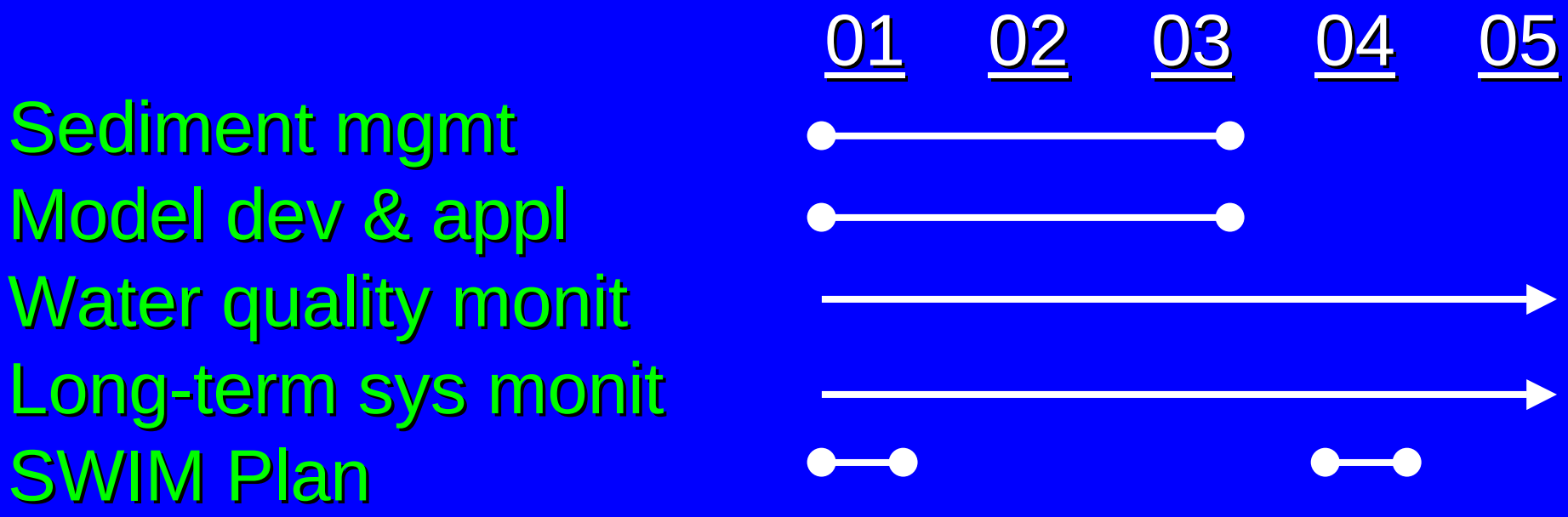
- Sediment management studies (2003)
- Model development and application (2003)
- Water quality monitoring (on-going)
- Long-term ecosystem monitoring (on-going)
- SWIM Plan (3-yr updates)

Total Phosphorus Loads and Target Loads




Lakewater Total Phosphorus
Concentration (ppb)
140
120
100
80
60
40
20
0
67
71
75
79
83
87
91
95
99
Year

In-Lake Restoration - Water Quality
Schedule



In-Lake Restoration - Hydrology: *Major Projects*

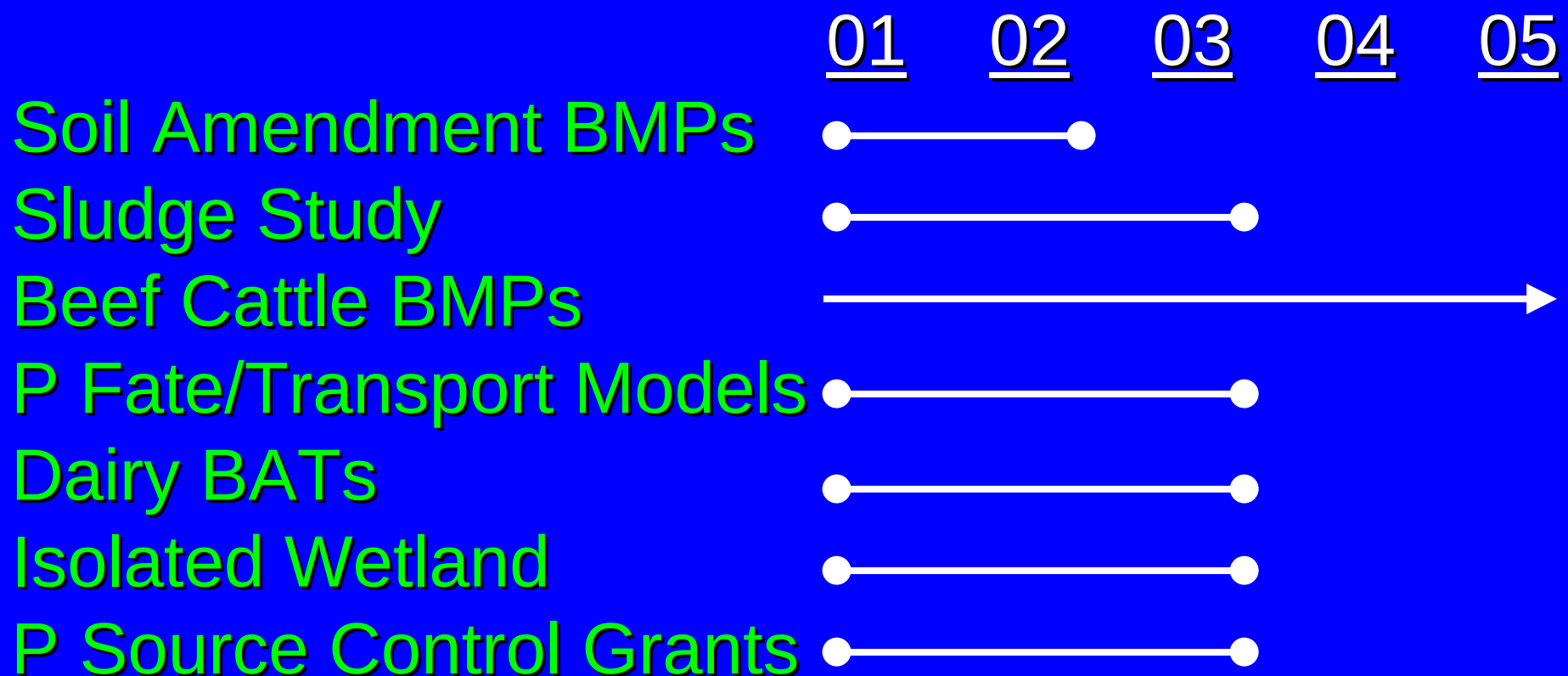
- Submerged Aquatic Vegetation (SAV) mapping (on-going) & growth (2003)
- Model development and application (2003)
- Long-term ecosystem monitoring (on-going)
- Regulation Schedule Implementation (on-going)
- SWIM Plan (3-yr updates)

In-Lake Restoration - Hydrology: *Schedule*

Watershed Restoration: P Source Control *Major Projects*

- Soil Amendment BMPs (yr 3 of 3)
- Biosolid Control (yr 1 of 3)
- Beef Cattle BMPs (yr 5 of 10)
- P Fate/Transport Models (on-going)
- Dairy BATs (yr 1 of 3)
- Isolated Wetland Restoration (yr 1 of 3)
- P Source Control Grants (yr 1 of 3)

Watershed Restoration: P Source Control *Schedule*



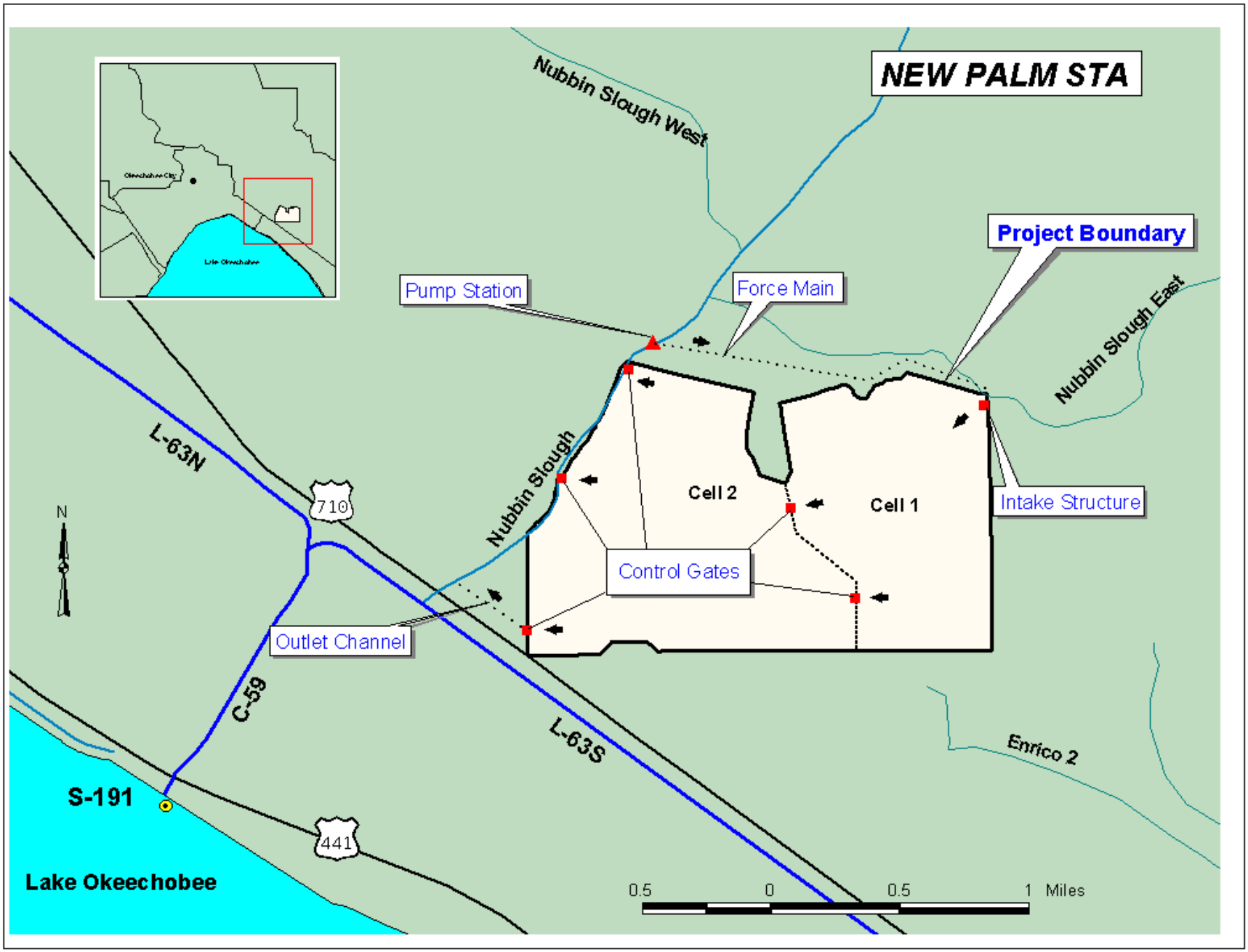
Watershed Restoration: Regional Control *Major Projects*

- LO Critical Project (2 pilot STAs, 10 restored wetlands)
- CERP Elements (~ 2015)
- Tributary Sediment Removal (yr 1 of 2)
- Retrofit Project Culverts (yr 1 of 3)
- Watershed P Budget (yr 1 of 2)
- Lake Istokpoga Source Control (on-hold)
- Upper Kiss. Lakes Source Control (on-hold)
- Economic Valuation Study (yr 1 of 2)

Nubbin Slough STA
New Palm/Newcomer Dairy

- 1,031-acre treatment area
- construction complete Nov ‘04
- construction cost $6,451,500
- average inflow 585 L/s (20.7 cfs)
- assume inflow TP concentration 620 ppb
- outflow TP concentration 60 ppb
- annual O&M cost $125,000
- 10,325 kg/yr TP removed, $16.1/kg

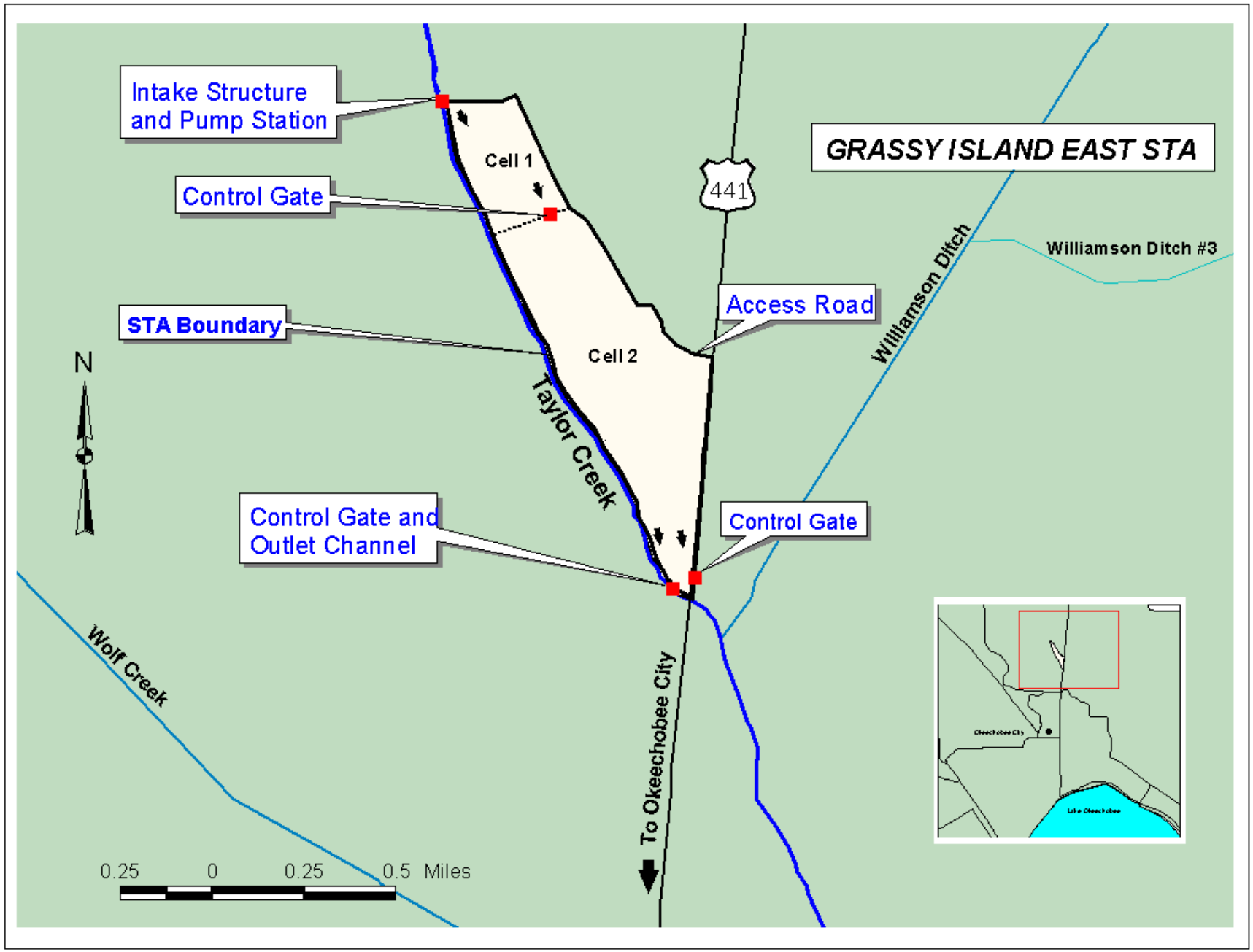
Reference: *Final Report, January 2000 and SOW, March 2001*


NEW PALM STA
Nubbin Slough West
Project Boundary
Pump Station
Force Main
Nubbin Slough East
L-63N
Nubbin Slough
Cell 2
Cell 1
Intake Structure
710
N
Control Gates
Outlet Channel
C-59
L-63S
Enrico 2
S-191
441
Lake Okeechobee
0.5
0
0.5
1 Miles

Taylor Creek STA
Grassy Island Ranch - East

- 162-acre treatment area
- construction complete Sep ‘03
- construction cost $2,898,500
- average inflow 180 L/s (6.35 cfs)
- assume inflow TP concentration 620 ppb
- outflow TP concentration 186 ppb
- annual O&M cost $40,000
- 2,464 kg/yr TP removed, $21.0/kg

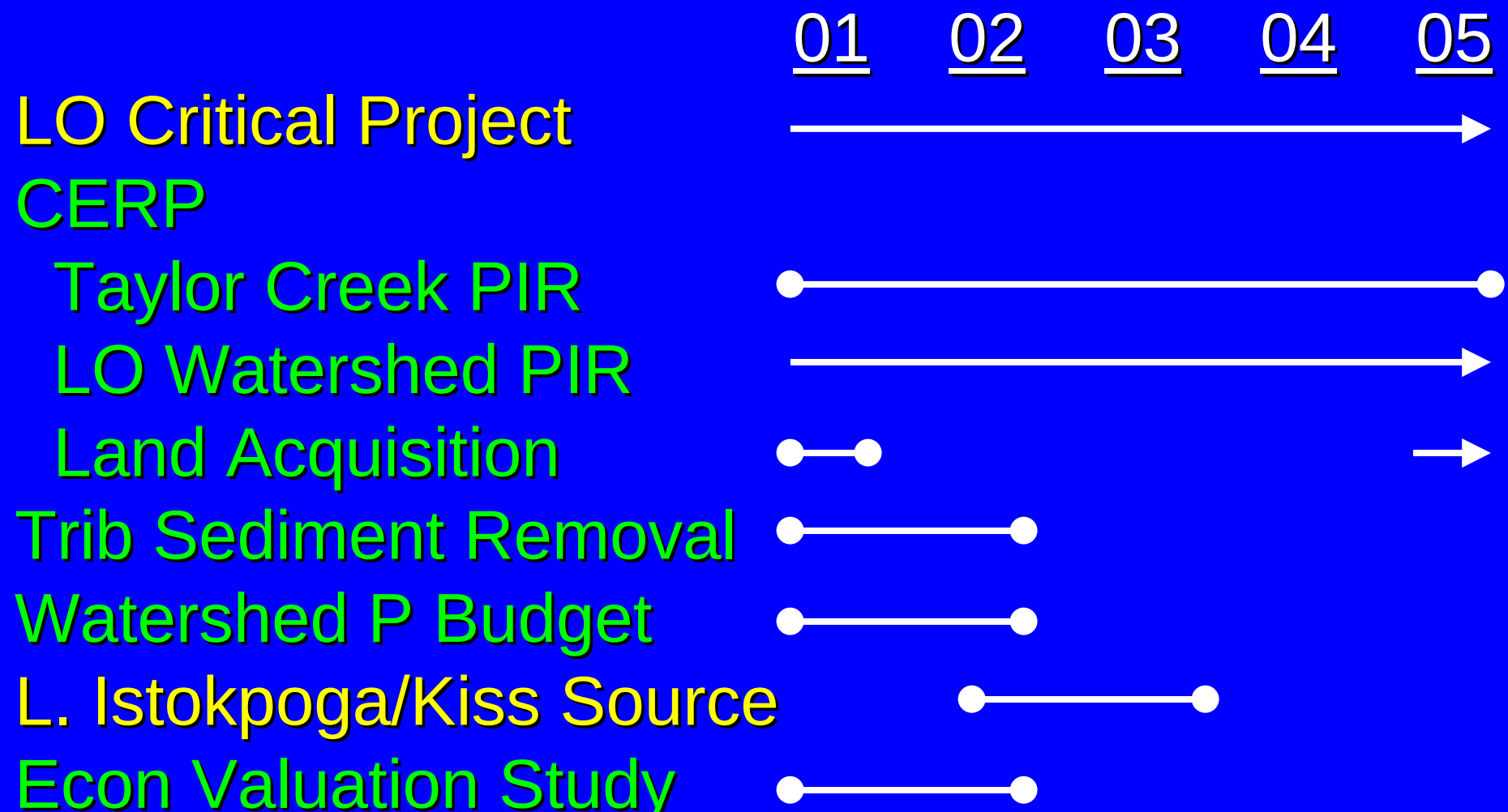
Reference: *Final Report, January 2000; Addendum Report, March 2001; and SOW, March 2001*


GRASSY ISLAND EAST STA
Intake Structure and Pump Station
Control Gate
STA Boundary
Control Gate and Outlet Channel
Cell 1
Cell 2
441
Access Road
Control Gate
Williamson Ditch
Williamson Ditch #3
Taylor Creek
Wolf Creek
To Okeechobee City
N
0.25 0 0.25 0.5 Miles

Lake Okeechobee Watershed Assessment Scope

- Taylor Creek/Nubbin Slough RASTA
- North of Lake Okeechobee Storage
- Lake Okeechobee Water Quality Treatment Facilities
- Lake Okeechobee Tributary Sediment Treatment

Watershed Restoration: Regional Control *Schedule*



Watershed Restoration: Regulation - WOD: *Major Projects*

Application, Compliance, & Monitoring

Regulatory Information Management

Works of the District Program Objectives

- Inventory and permit all non-dairy land use activities in the 14 priority basins. All parcels are assumed in compliance at the time of permitting.
- Perform compliance monitoring and synoptic water quality surveys to identify high phosphorus source areas (Basin and Parcel Scale) and compliance.
- Regulate for compliance with SWIM phosphorus discharge concentration limitations.
- Require corrective actions on parcels that do not meet the rule require phosphorus discharge concentration.

Watershed Restoration Regulation: WOD *Schedule*

	01	02	03	04	05
Applict'n, comp & mon	→				
Reg Info mgmt	→				

Water Advisory Panel Fund Status

- P source control grant program: $7.5 million
  - Two solicitation releases: May (fast-track) and June/July
  - $0.5 million spent on torpedograss control
- Grassy Island Ra-STA: $8.5 million
  - Close this summer
- Restoration of Isolated Wetlands: $4.5 million
  - Contracts to GB this summer
- Retrofit of Project Culverts: $3 million
  - culvert retrofits to be completed by 2002
  - dredging of tributaries initiated, to be completed by 2002

FY02 Legislative Appropriation ($10M)

- Lake Istokpoga and Upper Kissimmee Chain-of-Lakes watershed assessments
- Increased monitoring for inflows to LO
- Public-private partnerships
- Non-agricultural, non-point source phosphorus control projects
- BMPs for cow-calf operations
- Drought emergency operations (mitigation/restoration activities)